

# Sky and TELESCOPE



## INDEX to Volume XIX

November, 1959, to June, 1960

### Titles

- Abbé Lacaille's List of Clusters and Nebulae, *Owen Gingerich*, 207
- Amateur's Night Out, An, *Mrs. Joseph E. Stevens*, 199
- Amateur's Tour of Planetary Nebulae, An, *Leland S. Copeland*, 214; correction, 316
- AAAS Astronomy Highlights, *John B. Irwin*, 347
- American Astronomers Report—
- Absolute Magnitude of X Monocerotis, 94
  - Are Stars Alike in Different Parts of the Universe? 286
  - Color-Magnitude Diagram for Visual Binaries, 17
  - Coma Berenices Cluster and White Dwarfs, 339
  - Companion of Fourth Nearest Star, 469
  - Diameters of Lunar Craters, 285
  - Distance of the Sun, 16
  - Gas Motions in the Central Part of M31, 285
  - Intense Solar Flares of July 16, 1959, 339
  - Microwave Study of the Moon, 93
  - Moon's Distance by Radar, 16
  - Older Meteor Streams, 286
  - Polarization of Light of Moon and Planets, 17, 94
  - Pressure-Induced Nuclear Reactions in Stars, 16
  - Primordial Composition of the Solar System, 338
  - Proposed Explanation of Martian Phenomena, 469
  - Ratio Spectrometer, 18
  - Shattered Rocks Beneath Meteorite Craters Compared, 94
  - Spectral Surveys Including the Ultraviolet, 285
  - Symposium on Subdwarfs, 467
  - Unusual Star Cluster Messier 71, 93
  - Variable Stars in the Scutum Cloud, 93
- April Cover Picture Not an Aurora? 391
- Astronomy at Brigham Young University, *D. H. McNamara*, 274
- Comet Morehouse 1908 III, *Otto Struve*, 74
- Eclipse of the moon of March 13, 1960 (see also under Departments, Observer's Page)—
- Amateur Photographs of the March Lunar Eclipse, 402
  - Earth's Shadow Size at the March Lunar Eclipse, The, *Joseph Ashbrook*, 474
- Eclipse of the sun of October 2, 1959 (see also under Departments, Observer's Page)—
- Eclipse over New England, 4
  - German Amateurs View Eclipse, *Edgar Mädlow*, 219
  - Total Eclipse at El Aaiun, *M. Waldmeier*, 82
- Fauth, Philipp, and the Moon, *Hermann Fauth*, 21
- First Photograph of Moon's Far Side, 72; correction, 156
- Foucault Pendulum, A, *Warren I. Fillmore*, 144
- Gas and Dust in Globular Clusters, *Otto Struve*, 456
- Graphic Time Table of the Heavens—1960, 165, 166-167
- Great Aurora of Early September, The, 14
- Historic Debate About the Universe, A, *Otto Struve*, 398
- How Can We Detect Radio Transmissions from Distant Planetary Systems? *Frank D. Drake*, 140
- Instruments at the Leiden Southern Station, 205
- Lunar Occultation Observations by Amateurs, 71
- McCrea's Theory of the Solar System's Origin, *Otto Struve*, 154
- New Astronomical Chronograph, A, *William Mussetter*, 209
- New National Observatory Dedicated at Kitt Peak, *Charles A. Federer, Jr.*, 392
- New Universal Sundial Design, A, *Hermann H. Egger*, 470
- Occultation Supplement—1960 Predictions for the United States and Canada, 99
- Practical Use of Ephemeris Time, The, *G. M. Clemence*, 148
- Predicting and Observing Lunar Occultations, *Flora McBain Sadler*, 84
- Project Stratoscope Obtains Finest Pictures of the Sun, 79
- Radio Astronomy Receivers, *Frank D. Drake*, I, 26; II, 87
- Radio Astronomy Study of the Earth's Atmosphere, A, *Jules Aarons*, 406
- Reflections of a Spectroscopist, *Otto Struve*, 7
- Reminiscences of the Discovery of Pluto, *Clyde W. Tombaugh*, 264
- RZ Scuti—A Peculiar Spectroscopic Binary, *Otto Struve*, 276
- Simple Replica-Grating Spectroscope, A, *Ernst Keil*, 343
- Some New American Radio Telescopes, 3
- Some Observations of VV Puppis, *P. T. Oosterhoff* and *A. D. Thackeray*, 337
- Structure of Galactic Clusters, The, *Otto Struve*, 329; correction, 505
- Theory of the Origin of Lunar Rills, A, *Gilbert Fielder*, 334
- Two Eastern Planetariums Re-equipped, 271
- Variable Stars in the Orion Nebula, *Leif J. Robinson*, 152
- Visual Observations of Meteors, *Otto Struve*, 200
- Why Observe Stellar Eclipses? *Alan H. Bat-ten*, 464

## Authors

- Aarons, Jules*, Radio Astronomy Study of the Earth's Atmosphere, A, 406
- Acsbock, Joseph L.*, Casting the Parts of an Aluminum Mounting, 185
- Ashbrook, Joseph*, Astronomical Scrapbook, 92, 213, 342, 463  
book reviews, 369, 370  
Earth's Shadow Size at the March Lunar Eclipse, The, 474  
In Focus, 151; correction, 280  
Observations of the March Lunar Eclipse, 418  
Observing Programs for the Lunar Eclipse in March, 227
- Batten, Alan H.*, Why Observe Stellar Eclipses? 464
- Bisjak, Gilford C., Jr.*, Small Planetarium in Arizona, 476
- Boiland, Robert C.*, New England Observatory, A, 160
- Bondy, Harry L.*, letter, 263
- Brackbill, M. T.*, book review, 180
- Brichta, Ralph*, Milwaukee, Wisconsin, 159
- C. A. F.*, see *Federer, Charles A., Jr.*
- Calder, William A.*, book review, 431
- Carter, George D., Jr.*, Telescope Camera Holder, 56
- Clemence, G. M.*, Practical Use of Ephemeris Time, The, 148
- Copeland, Leland S.*, Amateur's Tour of Planetary Nebulae, An, 214; correction, 316
- Corrado, Henry M.*, Amateur Briefs, 413, 477
- Cox, Robert E.*, Concerning Spherical-Mirror Telescopes, 376  
conductor, Gleanings for ATM's, 51, 123, 185, 246, 310, 374, 438, 502  
Designing a Finder, 440  
Some Advantages of a Transfer Lens, 53  
Twyman Effect in Diagonals, The, 186
- Cruikshank, Dale P.*, letter, 327
- Dall'Olmo, U.*, letter, 263
- Davis, Morris S.*, book review, 493
- DeBruyn, David*, Michigan Amateur's Basement Planetarium, A, 29
- Dennington, S. H.*, letter, 327
- de Vaucouleurs, G.*, book review, 495
- Doucet, René*, Occultation of Neptune, 41
- Drake, Frank D.*, How Can We Detect Radio Transmissions from Distant Planetary Systems? 140  
letter, 263  
Radio Astronomy Receivers, I, 26; II, 87
- Egger, Hermann H.*, New Universal Sundial Design, A, 470
- Eigsti, W. E.*, Nebraska Planetarium with an Unusual Entrance, A, 287
- Evans, William H.*, letter, 327
- Fauth, Hermann*, Fauth, Philipp, and the Moon, 21
- Federer, Charles A., Jr.*, book review, 432  
New National Observatory Dedicated at Kitt Peak, 392
- Fielder, Gilbert*, Theory of the Origin of Lunar Rills, A, 334
- Fillmore, Warren I.*, Foucault Pendulum, A, 144
- Fogelquist, Rune*, letter, 139
- Freeman, Jay*, letter, 417
- Gingerich, Owen*, Abbé Lacaille's List of Clusters and Nebulae, 207  
book reviews, 115, 431
- Glenn, William H.*, Meteors, 60, 131, 190, 381, 446  
Sun, Moon, and Planets This Month, The, 61, 131, 191, 255, 319, 381, 447, 509
- H. M. C.*, see *Corrado, Henry M.*
- Harris, Wallace E.*, Flat-Roof Observatory, A, 124
- Herring, Alike K.*, Observing the Moon, Bessel, 169; Bürg and Lacus Mortis, 357; Parry and Bonpland, 32
- Houston, Walter Scott*, Deep-Sky Wonders, 42, 108, 171, 234, 297, 360, 490
- Hynek, J. Allen*, book review, 175
- Irwin, John B.*, AAAS Astronomy Highlights, 347  
book review, 44
- J. A.*, see *Ashbrook, Joseph*
- Jacchia, Luigi G.*, letter, 473
- James, Robert V.*, Simple Mounting Made of Thick-Walled Tubing, A, 188
- Johnson, Craig L.*, Ursid Meteors Observed, 294
- Jones, Albert F.*, Observations of a Nova in Ophiuchus, 35
- Keene, George T.*, book review, 241
- Keil, Ernst*, Simple Replica-Grating Spectroscope, A, 343
- Ketchum, Jesse*, Toronto, Canada, 351
- Konstanzer, Gordon*, Portable 6-inch Catadioptric Telescope, A, 502
- Lichtenstein, Pearl R.*, book review, 366
- Lorenz, Ernest*, Long Beach, California, 413
- Lugo, Delfin J.*, Amateur in Colombia, An, 413
- Mackintosh, Allan*, Glass Removal in Parabolizing, 504
- Mädlow, Edgar*, German Amateurs View Eclipse, 219
- Marks, Allan C.*, Amateur's Observatory Down Under, An, 224
- Masson, Kelvin*, Proper Location for a Newtonian Diagonal, 126
- May, Tommy*, Young Amateur's Observatory in Texas, A, 29
- Mayall, Mrs. Margaret W.*, Peculiar Variable Star V Sagittae, The, September, 1959; correction, 98
- McDonough, Alexander*, Omaha, Nebraska, 287
- McNamara, D. H.*, Astronomy at Brigham Young University, 274
- Melin, Marshall*, Observing the Satellites, 11, 90 (correction, 284), 157, 222, 283, 346, 409 (correction, 462), 459
- Miller, Freeman D.*, letter, 473
- Mohler, Orren C.*, book review, 301
- Multhauf, Robert P.*, letter, 473
- Mussetter, William*, New Astronomical Chronograph, A, 209
- Nieves, Andres, Jr.*, Juniors in Puerto Rico, 350
- Oort, J. H.*, letter, 417
- Oosterhoff, P. T.*, and *Thackeray, A. D.*, Some Observations of VV Puppis, 337
- R. E. C.*, see *Cox, Robert E.*
- Rizzo, P. V.*, book review, 366
- Roberts, Valerie A.*, film review, 47
- Robinson, Leif J.*, Variable Stars in the Orion Nebula, 152
- Roth, Nathan R.*, Silo-Domed Observatory for a 12½-inch Telescope, A, 374
- Rush, J. H.*, book review, 116
- Sadler, Flora McBain*, Predicting and Observing Lunar Occultations, 84
- Sato, Takeshi*, letter, 473
- Schultz, Sherman W., Jr.*, Low-Power Microscope System for High Magnifications, A, 51
- Setteducati, Arthur F.*, Listening to Meteors on Short Wave, 363
- Shaw, R. William*, book review, 237
- Shawcross, William E.*, book review, 370  
Questions from the S+T Mailbag, 24, 94, 165, 220, 286, 345, 408, 466
- Shinkle, C. E.*, Ohio Turnpike Amateurs, 78
- Smith, Bradford A.*, letter, 417
- Snowden, Michael S.*, Memphis Astronomical Society Observatory, The, 438
- Stevens, Mrs. Joseph E.*, Amateur's Night Out, An, 199
- Stevenson, Merritt*, Ohio Students Build High School Observatory, 159
- Stewart, John Q.*, "Red Tunnel" at a Sunrise Total Solar Eclipse, The, 111
- Struve, Otto*, Comet Morehouse 1908 III, 74  
Gas and Dust in Globular Clusters, 456  
Historic Debate About the Universe, A, 398  
McCrea's Theory of the Solar System's Origin, 154  
Reflections of a Spectroscopist, 7  
RZ Scuti — A Peculiar Spectroscopic Binary, 276  
Structure of Galactic Clusters, The, 329; correction, 505  
Visual Observations of Meteors, 200
- Thackeray, A. D.*, see *Oosterhoff, P. T.*
- Tombaugh, Clyde W.*, Reminiscences of the Discovery of Pluto, 264
- Urey, Harold C.*, letter, 94
- Vaughn, Frank*, Astronomical Seeing, 37
- W. E. S.*, see *Shawcross, William E.*
- W. H. G.*, see *Glenn, William H.*
- Waldmeier, M.*, Total Eclipse at El Aaiun, 82
- Watts, Raymond N., Jr.*, book review, 494
- Wells, James A.*, All-Purpose Telescope Assembly, An, 186
- Wood, Frank Bradshaw*, book review, 303
- Wylie, Lloyd R.*, letter, 417
- Youdale, Jack*, English Catadioptric Telescope, An, 123
- Young, Bradley H.*, 20-inch Reflector Built in Brazil, A, I, 246; II, 310
- Zirin, Harold*, book review, 176

## Departments and Features

### Amateur Astronomers —

Albuquerque, New Mexico, 29  
 Amateur Briefs, 413, 477  
 Amateur in Colombia, An, 413  
 Amateur's Observatory Down Under, An, 224  
 AAVSO Meets at Nahant, 78  
 AAVSO Spring Meeting, 476  
 Astronomical League 1960 Convention Plans, 477  
 Bartlesville, Oklahoma, 29  
 Brisbane, Australia, 350  
 Burlington, Iowa, 29  
 Cleveland, Ohio, 413  
 Contacting National Organizations, 287  
 Farmingdale, New York, 224  
 Georgia Amateur Dies, 287  
 Glen Burnie, Maryland, 476  
 Great Lakes Convention, 350  
 Hampton, Virginia, 224  
 Humboldt County, California, 29  
 Huntsville, Alabama, 78  
 Juniors in New Hampshire, Pennsylvania, and Wisconsin, 351  
 Juniors in Puerto Rico, 350  
 Kenosha, Wisconsin, 350  
 La Habra, California, 350  
 Lubbock, Texas, 351  
 Michigan Amateur's Basement Planetarium, A, 29  
 Milwaukee, Wisconsin, 159  
 Montreal, Canada, 159  
 Mt. Vernon, Ohio, 413  
 Nebraska Planetarium with an Unusual Entrance, A, 287  
 New Editor of *Reflector*, 351  
 New England Observatory, A, 160  
 Noble, Miss C. M., Dies, 159  
 Northeast Convention, 78, 350; Northeast Region Holds New York City Convention, 476  
 Northwest Convention, 350; Northwest Convention Date Changed, 476  
 Ohio Students Build High School Observatory, 159  
 Ohio Turnpike Amateurs, 78  
 Old Battleship Is Source for an Observatory Dome, 476  
 Omaha, Nebraska, 287  
 Planetarium in New Zealand, 350  
 Richards, Carl P., Dies, 477  
 Richland, Washington, 351  
 Riverside, California, 29  
 Silver Spring, Maryland, 413  
 Sioux Falls, South Dakota, 224  
 Small Planetarium in Arizona, 476  
 Society Listing, 224  
 Southeast Convention, 350  
 Southwest Convention, 477  
 Stamford, Connecticut, 29  
 Stellafane Meeting, 477  
 Steubenville, Ohio, 476  
 This Month's Programs, 29, 78, 160, 224, 287, 350, 413, 476  
 Toronto, Canada, 351  
 Two Clubs in Industry, 350  
 Two Louisiana Groups, 351  
 Washington, D. C., 29, 160

Western Amateurs To Meet in San Jose, 160  
 Young Amateur's Observatory in Texas, A, 29  
 Yucaipa, California, 287

### Astronomical Scrapbook —

Plato Illusion, A, 92  
 Trapezium in Orion, The, 213  
 Visual Star Colors and a List of Red Stars, 342  
 William Herschel and the Sun, 463

### Books and the Sky —

Astronomical Photography at the Telescope, Thomas Rackham, 241  
 Astronomy, Theodore G. Mehlin, 115  
 Astrophysique Générale, J. C. Pecker and E. Schatzman, 495  
 Close Binary Systems, Zdenek Kopal, 303  
 Elementary Astronomy, Otto Struve, Beverly Lynds, and Helen Pillans, 237  
 Handbuch der Physik, S. Flügge, editor, Vol. 53, Astrophysics IV: Stellar Systems, 44  
 Individual and the Universe, The, A. C. B. Lovell, 116  
 Introduction to the Mechanics of the Solar System, Rudolf Kurth, 493  
 Kepler, Max Caspar, 494  
 Larousse Encyclopedia of Astronomy, Lucien Rudaux and G. de Vaucouleurs, 431  
 Our Sun, Donald H. Menzel, 301  
 Paris Symposium on Radio Astronomy, Ronald N. Bracewell, editor, 175  
 Planet Venus, The, Patrick Moore, 370  
 Planetaria and Their Use for Education, Miriam Jagger, editor, 180  
 Radio Studies of the Universe, R. D. Davies and H. P. Palmer, 366  
 Rainbow, The, Carl B. Boyer, 369  
 Sky Observer's Guide, The, Newton Mayall, Margaret Mayall, and Jerome Wyckoff, 366  
 Sun, The, Karl Kiepenheuer, 176  
 Transits of Venus, The, Harry Woolf, 431  
 Unity of the Universe, The, D. W. Sciama, 432

### Celestial Calendar —

Configurations of Jupiter's Four Bright Moons, The, 446  
 Giacobinid Meteor Reports, 131  
 Jupiter's Satellites, 508  
 Mercury in the Evening Sky This Month, 508  
 Meteors, 60, 131, 190, 381, 446  
 Minima of Algol, 60, 130, 190, 254, 319, 380, 446, 508  
 Minor Planet Predictions, 60, 190, 254, 319, 381, 447, 509  
 Moon Phases and Distance, 61, 131, 190, 254, 319, 381, 447, 509  
 Occultation of Aldebaran, 318  
 Occultation Predictions, 130  
 Occultations in January, 190  
 Occultations of the Hyades and of Aldebaran, 380

Sun, Moon, and Planets This Month, The, 61, 131, 191, 255, 319, 381, 447, 509  
 Variable Star Maxima, 61, 130, 190, 254, 318, 380, 446, 509  
 Variable stars: Observable Algol Minima, 60; R Leporis, 130; R Hydrae, 190; Betelgeuse, 254; T Centauri, 318; V Bootis, 380; R Virginis, 446; SZ Herculis, 508

**Editors Note, The** — Two volumes of SKY AND TELESCOPE per year, 455

### Feature pictures —

Kappa Crucis, NGC 4755, 328  
 Mare Serenitatis region on moon, 150  
 Nebula surrounding Eta Carinae in southern Milky Way, 206

### Films and the Sky —

Story of the Universe, The, Harlan J. Smith, Unit I: The Earth and Its Moons, 47

### Front-cover photographs —

Kitt Peak Observatory 36-inch reflector, 389  
 Leiden 36-inch light collector in South Africa, 197  
 Moon's other side, 69  
 New projector in New York, 261  
 Springfield's Foucault pendulum, 137  
 Total eclipse and shadow, 1  
 Unusual aurora in February, 325 (see also April Cover Picture Not an Aurora? 391)  
 Weather satellite launching, 453

### Getting Acquainted with Astronomy —

Planets, The, Mercury, I, 221; II, 275; Venus, I, 416  
 Techniques of Lunar and Planetary Observing, I, September, 1959; II, 25

### Gleanings for ATM's —

All-Purpose Telescope Assembly, An, 186  
 Casting the Parts of an Aluminum Mounting, 185  
 Concerning Spherical-Mirror Telescopes, 376  
 Designing a Finder, 440  
 English Catadioptric Telescope, An, 123  
 Flat-Roof Observatory, A, 124  
 Glass Removal in Parabolizing, 504  
 "Gleanings" Index, 505  
 Low-Power Microscope System for High Magnifications, A, 51  
 Memphis Astronomical Society Observatory, The, 438  
 Portable 6-inch Catadioptric Telescope, A, 502  
 Proper Location for a Newtonian Diagonal, 126  
 Silo-Domed Observatory for a 12½-inch Telescope, A, 374  
 Simple Mounting Made of Thick-Walled Tubing, A, 188  
 Some Advantages of a Transfer Lens, 53  
 Telescope Camera Holder, 56

20-inch Reflector Built in Brazil, A, I, 246; II, 310  
 Twyman Effect in Diagonals, The, 186  
**Here and There with Amateurs**, 351  
**In Focus**, 151 (correction, 280)  
**In the Current Journals**, 19, 81, 147, 219, 281, 333, 414, 472  
**Letters**, 94, 139, 263, 327, 417, 473  
**New Books Received**, 48, 119, 181, 232, 306, 372, 434, 501

#### News Notes —

AAS To Meet in Pittsburgh, 332  
 Anderson, John A., Dies, 218  
 ASP Meeting in Oregon, 332  
 Astronomy TV Programs from Philadelphia, 151  
 Auroral Wall of Light, 81  
 Big Reflector Planned for Argentina, 333  
 Catalogue of Dwarf Galaxies, 19  
 Daytime Auroras, 18  
 December Meetings, 81  
 84-inch Mirror Blank Being Ground in Tucson, 218  
 Ejection of Matter from Red Giant Stars, 333  
 Fireball of July 26, 1938, 281  
 Flare-Patrol Photographs, 147  
 General Magnetic Field of the Sun, 147  
 Geochemical Table of the Elements, 149  
 Gum, C. S., Dies, 472  
 Harvard Appointments, 415  
 High Solar Prominences, 415  
 International Astronomical Union 1961 Meeting, 19  
 Land, Gustav, Dies, 19  
 Lunar Ray Formation, 146  
 Mass of Saturn, 472  
 Medal to E. J. Opik, 463  
 Meteor Trails Used in Radio Communication, 19  
 Mitchell, S. A., Passes Away, 333  
 Molecular Spectra, 415  
 Moon-Venus Conjunction, 81  
 NSF Grants for Observatory Development Projects, 212  
 NSF Tenth Anniversary, 472  
 New Bright Variable Star, 280  
 New Director for Dearborn, 81  
 New German Observatory, 212  
 New Harvard-Smithsonian Research Building, 282  
 New Leuschner Director, 151  
 New Lunar Atlas, 415  
 New Yerkes-McDonald Director, 463  
 Nova Herculis 1960, 414

Ohio Appointment, 282  
 142-foot Radar Telescope for Stanford University, 80  
 Optical Testing on Stars, 282  
 Parenago, P. P., Death of, 219  
 Peculiar Solar Observations Explained, 472  
 Peculiar Southern Binary, 414  
 Peculiar Variable Star, 81  
 Perkins 69-inch Telescope To Be Moved to Arizona, 281  
 Pioneer Radio Telescope, 143  
 Planetarium Endowment, 472  
 Planetarium Inventor Dies, 146  
 Polaris and the Pole, 218  
 Radar Echoes from the Sun, 281  
 Radio Storm in Sun's Corona Recorded, 147  
 Range of Radio Telescopes, 282  
 Rapidly Varying Star, A, 218  
 Report of New Principal Planet Unfounded, 333  
 Satellite Secures Weather Picture, 73  
 Seasonal Changes in Night Vision, 415  
 16th-Century Planetary Position Predictor, 80  
 Solar System Satellites, 281  
 Soviet Journal, 332  
 Texas Summer Workshop for High School Students, 282  
 Tycho Brahe's Theory of the Solar System, 282  
 University Gives Observatory to Amateur Astronomer, 19  
 Unusual Irregular Galaxy, 146  
 Velocity of Light, 19  
 Visiting Professor Program, 415  
 Water in Venus' Atmosphere, 343  
 Wilkins, H. P., Dies, 280  
 Xenon in Meteorites, 282

#### Observer's Page —

Aldebaran Occultation, 41  
 Another Comet Burnham, 298  
 April Auroras, 489  
 Astronomical Seeing, 37  
 Auroras in February, 359  
 Celestial Shadows, 298  
 Comet Burnham 1959k, 292; News of Comet 1959k, 479  
 Comet Giacobini-Zinner, 112  
 Deep-Sky Wonders, 42, 108, 171, 234, 297, 360, 490  
 Drawing the Moon and Planets, 480  
 Eclipse of the moon of March 13, 1960 (see also under Titles): List of Correspondents on March Lunar Eclipse, 426; Observations of the March Lunar

Eclipse, 418; Observing Programs for the Lunar Eclipse in March, 227  
 Eclipse of the sun of October 2, 1959 (see also under Titles): Amateur Observations of October's Eclipse, 97; "Red Tunnel" at a Sunrise Total Solar Eclipse, The, 111  
 Late-November Aurora, A, 170  
 Listening to Meteors on Short Wave, 363  
 March Aurora, 428  
 New Variable Stars, 35  
 Observations of a Nova in Ophiuchus, 35  
 Observing the Moon, Bessel, 169; Bürg and Lacus Mortis, 357; Parry and Bonpland, 32  
 Occultation of Neptune, 41  
 Occultation of Regulus by Venus, 98  
 Peculiar Variable Star V Sagittae, The, September, 1959; correction, 98  
 September's Penumbral Eclipse of the Moon, 107  
 Sidereal Time for 1960, 171  
 Solar Photography with Autopositive Film, 359  
 Sunspot Numbers, 41, 108, 172, 232, 299, 365, 428, 480  
 Ursid Meteors Observed, 294  
 Venus-Jupiter Conjunction, 299

#### Observing the Satellites —

Astronomical Observing from Above the Earth's Atmosphere, 283  
 Discoverers VII and VIII, 157  
 Discoverer XI, 462  
 Earth Observations from an Artificial Satellite, 459  
 Explorer VI and Lunik III, 157  
 Explorer VII, 90; More About Explorer VII, 223  
 First Two Years of the Space Age, 12  
 Lunik III, 91 (correction, 284)  
 Navigation Satellite, 461  
 Pioneer V, 409 (correction, 462); Motion of Pioneer V, The, 411  
 Project Echo, 222  
 Satellite Nomenclature, 412  
 Satellites in Orbit — March 1st, 346  
 Touching the Moon, 11  
 Translunar Orbit, 13  
 "Unknown" Satellite, The, 346  
 Vanguard III, 11

#### Planetarium Notes, 30, 288

**Questions from the S+T Mailbag**, 24, 94, 165, 220, 286, 345, 408, 466  
**Southern Stars**, 64, 256, 384, 512  
**Stars for . . .** (current month), 65, 133, 193, 257, 321, 385, 449, 513

